

NOTES ON THE GENUS CLERODENDRUM (VERBENACEAE). XXVI

Harold N. Moldenke

CLERODENDRUM Burm.

Additional synonymy: *Clerodendron* Sharma & Mukhopadhyay, Journ. Genet. 58: 373 sphalm. 1963. *Clerojendrum* Blasco, Trav. Sect. Scient. Techn. Inst. Franç. Pond. 14: 83 sphalm. 1975.

Additional & emended bibliography: Blanco, Fl. Filip., ed. 3, 2: 14 & 292--294 (1878) and 6: pl. 173 & [222--225]. 1878; Fern.-Villar & Naves in Blanco, Fl. Filip., ed. 3, 4: Nov. App. 160--161. 1880; Mercado, Lib. Med. 45. 1880; Vidal y Soler, Phan. Cuming. Philip. 5, 21, 53, 55, 62, 64, 67, 74, 87, & 135. 1885; Vidal y Soler, Rev. Pl. Vasc. Filip. 211 & 221. 1886; R. Good, Feat. Evol. Flow. Pl., imp. 1, 352. 1955; J. A. Wolfe, Madroño 20: 95. 1969; R. Good, Feat. Flow. Pl., imp. 2, 352. 1974; Blasco, Trav. Sect. Scient. Techn. Inst. Franc. Pond. 14: 17, [19], 22, 23, 28, 38, 39, [44], 58, 64, 83, 116, 119, 129, 130, 138, 141, 153, 173, & erratum, fig. 7 & 9. 1975; Alcorn, Huastec Mayan Ethnobot. 604--605 & 870. 1984; Mold., Phytologia 61: 77--116. 1986.

Additional excluded species: *Clerodendron bhraramari* Pammell, Man. Poison. Pl., ed. 2, 65 & 932 nom. nud. 1911 = ? probably not verbenaceous!

CLERODENDRUM ACULEATUM (L.) Schlecht.

Additional bibliography: Mold., Phytologia 61: 22, 24, 26, 97, & 105. 1986.

A key to help distinguish this species from other cultivated Hawaiian species will be found under *C. indicum* (L.) Kuntze in the present series of notes (61: 24--25).

CLERODENDRUM ALATUM Gürke

Additional bibliography: A. W. Hill, Ind. Kew. Suppl. 7: 51. 1929; Mold., Phytologia 60: 360. 1986.

CLERODENDRUM BRACHYANTHUM Schau.

Additional bibliography: Mold., Phytologia 60: 363. 1986.

A key to help distinguish this species from other Indonesian taxa will be found under *C. klemmei* Elm. in the present species of notes.

CLERODENDRUM BREVIFLORUM Ridl.

Additional bibliography: Mold., Phytologia 60: 363. 1986.

A key to help distinguish this species from other Indonesian taxa will be found under *C. klemmei* Elm. in the present series of notes.

CLERODENDRUM BUCHANANI (Roxb.) Wal.

Additional & emended bibliography: Hassk., Retzia 60 & 62. 1855;

Mold., *Phytologia* 60: 364. 1986.

A key to help distinguish this species from other Indonesian taxa will be found under *C. klemmei* Elm. in the present series of notes.

CLERODENDRUM BUCHHOLZII Gürke

Additional & emended bibliography: Thiselt.-Dyer, Ind. Kew. Suppl. 2: 43 & 172. 1904; Mold., *Phytologia* 60: 364. 1986.

CLERODENDRUM BUNGEI Steud.

Additional & emended bibliography: Rehd., *Journ. Arnold Arb.* 15: 324--325. 1934; J. F. MacBR., *Field Mus. Publ. Bot.* 13 (5): [Fl. Peru] 698. 1959; Mold., *Phytologia* 60: 364--365. 1986.

It should be noted that Rehder (1934) dates Léveillé's *Fl. Kouy-Tchéou* as "1915", rather than 1914, perhaps from some evidence not known to me. *Pavetta esquirolii* Lévl., in the synonymy of *Clerodendrum bungei*, is based on *Esquirol* 805 from Tchéou-mao-tan, Kweichow, China, collected on July 30, 1905, and *Maire s.n.* from the Vallée de Hong-lou, at 600 m. altitude, Yunnan, collected in June of 1912. The species was referred to *C. bungei* by Rehder and also by workers in the Edinburgh herbarium, according to an undated notation on Maire's cotype in that herbarium. It was also placed here doubtfully by P'ei (1932). Rehder notes that "Besides the characters mentioned by P'ei to distinguish *C. fragrans* and *C. Bungei* the calyx-teeth seem to present good character; they are lanceolate and long-acuminate in the former and triangular-ovate and acute in the latter."

CLERODENDRUM BURUANUM Miq.

Additional bibliography: Mold., *Phytologia* 60: 365. 1986.

A key to help distinguish this species from other Indonesian taxa will be found under *C. klemmei* Elm. in the present series of notes.

CLERODENDRUM BURUANUM f. *LINDAWIANUM* (Lauterb.) Bakh.

Additional bibliography: Mold., *Phytologia* 60: 365. 1986.

A key to help distinguish this form from other Indonesian taxa will be found under *C. klemmei* Elm. in the present series of notes.

CLERODENDRUM CALAMITOSUM L.

Additional bibliography: Paxt., *Mag. Bot.* 11: [169]. 1841; Edwards, *Bot. Reg.* 30: pl. 19 in textu. 1894; Boorsma, *Meded. Lands Plant.* 52: [22]. 1902; Mold., *Phytologia* 60: 365. 1986.

A key to help distinguish this species from other Indonesian taxa will be found under *C. klemmei* Elm. in the present series of notes.

CLERODENDRUM CALYGINUM Turcz.

Additional bibliography: H. J. Lam, *Verbenac. Malay. Arch.* 284 & 363. 1919; Mold., *Phytologia* 58: 410--411. 1986.

Lam (1919) reduces this species to synonymy under what he calls *C. infortunatum* L.

CLERODENDRUM CANESCENS Wall.

Additional bibliography: Mold., *Phytologia* 60: 366 & 368 (1986)

and 61: 88. 1986.

A key to help distinguish this species from others in Taiwan will be found under *C. intermedium* Cham. in the present series of notes.

CLERODENDRUM CAPITATUM (Willd.) Schum. & Thonn.

Additional bibliography: Isaacson, Flow. Pl. Ind. 1: 335. 1979; Mold., Phytologia 60: 366. 1986.

A key to help distinguish this species from other taxa known from Indonesia will be found under *C. klemmei* Elm. in the present series of notes.

CLERODENDRUM INERME (L.) Gaertn.

Additional bibliography: Blasco, Trav. Sect. Scient. Techn. Inst. Franc. Pond. 14: 17, [19], 22, 22/23, 38, 39, [44], 58, 116, 119, 138, & 173, fig. 7. 1975; Mold., Phytologia 61: 77--116. 1986.

A key to help distinguish this species from other Indonesian taxa will be found under *C. klemmei* Elm. in the present series of notes.

The Adlard s.n. [1/25/38], distributed as *C. commersonii* Lam., actually is *C. klemmei* Elm.

Additional citations: SRI LANKA: Marcovicz s.n. [12.III.27] (L).

CLERODENDRUM INERME f. *PARVIFOLIUM* Mold.

Additional bibliography: Mold., Phytologia 61: 105. 1986.

The *Clerodendron emarginatum* of Briquet was based by him on an unnumbered Ruiz & Pavon specimen in the Delessert Herbarium at Geneva, thought by Briquet to have come from Mexico and by Merrill to have come from South America, perhaps Peru.

Santapau states that small-leaved plants of *C. inerme*, when grown on his University campus, produced leaves of the normal size and shape of the typical form of the species. However, small-leaved specimens are known from cultivated plants grown in England, France, Germany, and India, so it does not seem that cultivation in "heter" soil conditions always "restores" the typical *inerme* form of the leaves. Vernacular names for the small-leaved form in Sri Lanka are "burende" and "gulinda" -- names also applied to the typical form there.

The form is based on N. Wirawan 683 from a rocky area near the Smithsonian Camp, Patanagala, in Ruhuna National Park, Hambantota District, Sri Lanka, collected on October 28, 1968, and deposited in the Britton Herbarium at the New York Botanical Garden.

Willdenow's original (1809) description of his *Volkameria buxifolia* is merely "fol. obovatis retusis integerrimis nitidis; pedunculis axillaribus sub-1-floris. Patria ? ¶". Seemann (1866), uniting it with *Clerodendrum inerme*, comments that "The small-leaved form I have seen from Mangalor (Hohenacker!), China (Amhurts!), Hongkong (Urquhart! Hance! Champion!), Rangoon (M'Clelland!)". Macbride (1960) records it "Without locality, Ruiz & Pavon" from Peru, and this may well be the same Ruiz & Pavon collection on which Briquet, in 1896, based his *Clerodendron emarginatum*, and for which he gives the following detailed description: "Frutex ramosus, ramis inermibus, brevissime adpresse pubescentibus, internodiis sat brevi-

bus. Folia obovata, apice acute marginata, marginibus rotundatis, basi cuneiformiter in petiolem brevem extenuata, utrinque viridia, glabra, integra, tenuia, herbacea; nervatio pinnatim simplex, haud prominula. Cymae axillares vel versus apicem ramorum confertae, saepius 3 florum, pedunculatae, pedicellis elongatis, axibus tenuibus subglabris. Calix obconico-campanulatus, glaber vel subglaber, haud striatus, minute mucroniformiter 5 dentatus. Corolla syphonoidea, tubo tenui, calicis os multoties superante, aequali, fauce tantum aliq. ampliata; limbus subbilabiatus; labri lobi minores obovati; labioli lobi majores patentes obovati. Stamina longissime exserta, basi tubi corollini inserta, filamentis capillaceis glabris, antheris oblongis, versus medium affixis. Stylus capillaceus longissime exsertus, apice minute et acute 2 fidus, glaber. Fructus desunt. Internodia suppetentia 1--1,5 cm. longa. Foliorum petiolus 2--4 mm. longus, limbus superficiei 1,5--2 x 1,2--1,5 cm., sinus apicalis ad 2 mm. profundus. Calicis tubus 3--4 mm. longus, dentibus 0,5--0,8 mm. longis. Corolla calicis os 3--3,5 cm. excedens, tubo 3 cm. longo et medio vix 1 mm. lato; labri lobi superficiei circa 3 x 2 mm., labioli lobi superficiei circa 5 x 4 mm. Genitalia corollae os circa 1,5--2 cm. excedentia. In America tropica (verisimiliter Mexico) (Ruiz et Pacon in h. Delessert). Species a caeteris americanis foliorum forma facillima distinguenda." E. D. Merrill, in a personal communication to me, gave the opinion that this collection was made in Peru, not Mexico.

Sweet (1826) calls this the "box-leaved clerodendrum" and avers that it was introduced into English gardens in 1818, but does not hazard a guess as to where from.

Recent collectors describe the plant as a low, gregarious, straggling, sprawling, or spreading, even scandent, branched, profusely flowering shrub, 0.5--2 m. tall, the stems to 2 m. long, arching, silvery-white or ochraceous, the branches decussate, stout or (mostly) slender, gray, and tangled, the leaves strong-smelling when bruised, the blades coriaceous or fleshy when fresh, varying from obovate or elliptic-obovate to elliptic or broadly oval, often plainly bicolored, dull or shiny dark-green above, yellowish beneath, the inflorescence 3-flowered, the flower-buds pinkish or white and apically tinged pink-purple, the flowers conspicuous, the calyx pale-green, the corolla-tube 1--1.5 cm. long during full anthesis, the filaments red or red-purple to purple or dark-purple or maroon, sometimes basally white and apically purple, the style also red or reddish-purple to purple or maroon, and the immature fruit green.

Collectors have encountered this plant in alluvial or swamp forests, in the partial shade of forest scrub, along tidal rivers, on riverbed sand-bars, in or at the edge of salt-water, on sandy seashores and in seashore scrub, on coral sand beaches, riverine thickets, in brackish water and saltmarshes, in sedimentary soil on savannas and "in open places with few herbs". on rocky coasts and sand-dunes, often in association with *Acanthus ilicifolius* in the mangrove zone, from sealevel to 1000 m. altitude (the upper figure according to Yeshoda in Madras), in flower from October to January, as well as in March and May to July, and in fruit in July.

The corollas are described by most collectors as "white" (e.g., on *Amaratunga* 101, *Bernardi* 14274, 15345, 15603, 16003, & 16051, *Comanor* 896, *Croft & Vibas* LAE.61303, *Davidse & Sumithraarachchi* 9144, *Fosberg & al.* 53019 & 53627, *Hu* 10250, *Jayasuriya* 1352, *Moldenke & al.* 28244, *Sohmer & al.* 8859, *Sumithraarachchi & al.* DBS.778a & 794, *Tirvengadam* 622, and *Wirawan* 683 & 1114), but as "rosy-white" on *Guillaumin* 8545, "white, pink-tinged" on *Simpson* 7917, "violet-white" on *Bernardi* 15300, and "yellow" on *Waas* 2140. Fosberg describes the plant as "common near water channels on low dunes back of the beach"; *Sumithraarachchi* refers to it as "a common maritime shrub", while *Bernardi*, also in Sri Lanka, refers to it as "frequent", "rather frequent", "occasional", "rather rare", and "rare" in various localities on that island.

Hohenacker asserts that the plant flowers "in the rainy season", while *Mukherjee*, amazingly, describes it as an "annual herb". *St. John*, in Bombay, describes it as having "stems 2 m. long, arching, forming thickets 6 m. across". *Bernardi*, on his no. 15300 notes "per viam litoralim...ad mare, haud frequens...frutex sarmentosus; ramis robustis, rectis, armatis; cortice leucophaeo; flores conspicui, albo-violacei; folia carnosiuscula, ovata, discoloria, subglucida" and for his no. 14274 "in arenosis maritimis...rara....frutex foetidus; folia coriaceo-carnosa, elliptica; flores conspicui, candidis, filamentis exsertis".

It should also be mentioned that on *Clapp P-7L-9* and *Sohmer & al.* 8869 the leaf-blades are apically decidedly pointed; on *Wirawan* 1114 they are almost rotund, but rather large; on *Moldenke & al.* 28243 they are various in shape and size on the same shrub, on 28244 they are also various, but decidedly mostly small in size. *Santapau* affirms that he has transplanted a small-leaved shrub from the sea-coast to his garden and found that it there produced the normal large leaves of typical *C. inerme* (L.) Gaertn. It is for this reason that I am regarding the taxon as a mere edaphic form, rather than a true biological variety (or species). Most of the Hong Kong material cited under typical *C. inerme* exhibits quite small leaves and may better be regarded as representing f. *parvifolium* or an intermediate form.

Material of *C. inerme* f. *parvifolium* has mostly been identified and distributed in herbaria as typical *C. inerme* (L.) Gaertn. or its var. *neriifolia* S. Kurz or "Kuntze", *Clerodendrum inerme* Joshi, *C. litoreum* Roxb., *Volkameria inermis* L., *Pavetta* sp., or even *Goodeniaceae*.

Citations: PERU (?): Province undetermined: *Pavon s.n.* [Macbride photos 24625] (Cb, F--772026--photo, K--photo, Kr--photo, Ld--photo, N--photo, S--photo). INDIA: Kerala: *Hohenacker* 78 (Mu--809). Maharashtra: *St. John* 24063 (Bi). Tamil Nadu: *Yeshoda* 215 (N). Union Territory: *Brasc* 2v91 (W--2827255, W--2827256). SRI LANKA: *Amaratunga* 101 (Pd); *Bernardi* 15300 (W--2808313), 15345 (W--2807858), 15603 (W--2808765), 16003 (W--2808786), 16051 (W--2808787); *Burmann* 10 (Mu--803); *Comanor* 896 (Kh, Ld, N, Pd); *Cooray* 68053016R (Pd, W--2612077); *Davidse & Sumithraarachchi* 8231 (Ld, W--2808700), 9144 (Ld, W--2833952); *Fosberg, Mueller-Dombois, Wirawan, Cooray, & Bala-*

krishnan 51218 (N, W--2676595); Fosberg & Sachet 53019 (Ac, W--2750169); Jayasuriya 1352 (Ac, W--2806295); Moldenke, Moldenke, & Jayasuriya 28243 (Ac, Gz, Ld, Pd, W--2764529), 28244 (Ac, E, Gz, Kh, Ld, Pd, Tu, W--2764530); N. B. Simpson 7917 (N); Sohmer, Waas, & Eliezer 8859 (Lc, N, W--2803908), 8869 (Lc, N, W--2803918); Sumithraarachchi DBS.778a(N, W--2807752), DBS.794 (Or--163260, W--28054-19); Tirvengadam 622 (W--2806275); Waas 249 (Or--163345, W--2803771), 2140 (W--2877601); Wirawan 683 (Ld--isotype, N--type, Pd--isotype, W--2612073--isotype), 1114 (E, N, Pd, W--2718794). SRILANKAN OFF-SHORE ISLANDS: Kayats: Bernardi 14274 (W--2765449). Mannar: Fosberg & Balakrishnan 53627 (Ld, N, W--2750172). BANGLADESH: Thomson & Hooker s.n. [Plan. Ganget. Inf.] (Mu--810, Pd). CHINA: Kwangtung: Hance 392 in part (Pd). CHINESE COASTAL ISLANDS: Hainan: Fung 20275 (B, Bz--19685, Ca--11530, Mi, N, W--1751090); Wang 33809 (Mi, N). Lantau: Hu 10250 (W--2731884). VIETNAM: Annam: Clemens & Clemens 3364 (Ca--339578, Gg--156633, Mi, N, Ut, W--1428033); Kuntze 3683 (N), 3800 (N). PHILIPPINE ISLANDS: Luzon: Escritor, Herb. Philip. Bur. Sci. 21080 (Bz--19604, N); Loher 4425 (Mu--3928, W--446872). PHOENIX ISLANDS: Canton: Clapp P-71-9 (W--2774601). NEW GUINEA: Papua: Croft & Vibas LAE.61303 (Mu, W--2741694). NEW CALEDONIAN ISLANDS: New Caledonia: Baumann-Bodenheim 5072 (N); Franc 1384 (La, N), 2233 (Ca--390577, N, W--1625459); Guillaumin 8545 (N); Vieillard 1049 (C, Pa). CULTIVATED: Germany: Herb. Hort. Bot. Berol. s.n. [C] (V). India: Herb. Cooke s.n. [College Bot. Gard. Poona] (Pa); Mukherjee s.n. [July '75] (Ld). Italy: Herb. Rottböll s.n. [Monticello] (Cp, Ld--photo, N--photo, S--photo). Pakistan: Fosberg 57757 (W--2887565). Russia: Herb. Ledebour s.n. (L, L). LOCALITY OF COLLECTION UNDETERMINED: Collector undetermined 1573/1837 (Pd); Herb. Roxburgh s.n. [Herb. Martii] (Br); Herb. Willdenow s.n. (E--photo, Ld--photo, N--photo); Kuriakose s.n. [Korealam, 18-1-33] (M); C. Wright s.n. (T).

CLERODENDRUM INFORTUNATUM L., Sp. Pl., ed. 1, imp. 1, 2: 637 [as "infortunata"]. 1753; Gaertn., Fruct. Sem. Pl. 1: 271, pl. 57, fig. 1. 1788 [not Auct., 1935, nor Blume ex H. Hallier, 1918, nor Dennst., 1959, nor "L. ex parte Rheede", 1967, nor Lindl., 1918, nor Lour, 1935, nor Miq., 1968, nor Wight, 1918].

Synonymy: *Clerodendron folio lato & acuminato* J. Burm., Thes. Zeyl. 66--69, pl. 29. 1737. *Clerodendrum foliis simplicibus cordatis tomentosus* L., Fl. Zeyl., ed. 1, 104--105. 1747. *Clerodendrum infortunata* L., Sp. Pl., ed. 1, imp. 1, 2: 637. 1753. *Clerodendrum folio lato & acuminato* Burm. apud L., Sp. Pl., ed. 1, imp. 1, 2: 637 in syn. 1753. *Viburnum zeylanicum maximum conjugato oblongo folio, flore albo* Hartogh ex N. L. Burm., Fl. Indica 137 in syn. 1768. *Clerodendrum infortunatum* Retz., Nom. Bot. 155. 1772. *Clerodendrum foliis cordatis tomentosus* L. apud Murray in L., Syst. Veg., ed. 12, 578. 1784. *Clerodendrum infortunatum* Gaertn., Fruct. Sem. Pl. 1: 271. 1788. *Pinnakola* Herm. ex Gaertn., Fruct. Sem. Pl. 1: 271 in syn. 1788. *Clerodendrum infortunatum* φ fol. lato & acuminato P. Mill., Gard. Dict., ed. 9, 1: *Clerodendrum* l. 1797. *Clerodendrum infortunatum* Vent. apud Pers., Sp. Pl. 3: 365. 1819. *Clerodendrum*

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Illustrations: J. Burm., Thes. Zeyl. pl. 29. 1737; Wight, Icon. Pl. Indiae Orient., imp. 1, 4 (3): pl. 147. 1849; Blatter, Caius, & Mhaskar in Kirtikar & Basu, Indian Med. Pl., ed. 2, imp. 1, pl. 746. 1935; Wight, Icon. Pl. Indiae Orient., imp. 2, 4 [Cramer & Swan, Hist. Nat. Class. 31]: pl. 1471. 1963; Arachi, Pict. Present. Indian Fl. 158 & 159, fig. 160 & 161. 1968; Blatter, Caius, & Mhaskar in Kirtikar & Basu, Indian Med. Pl., ed. 2, imp. 2, pl. 746. 1975.

A mostly single-stemmed, branching shrub, 1--2 m. tall, or small, slender, erect tree to 5 m. tall; branchlets medium-slender, obtusely tetragonal, densely appressed-pubescent with antrorse flavescent hairs; nodes slightly flattened, not annulate; principal internodes 5--9 cm. long; leaves decussate-opposite; petioles slender or rather stout, 1.5--13 cm. long, densely appressed-pubescent, sometimes collapsing at the base in drying; leaf-blades thinly membranous or chartaceous, uniformly dark-green on both surfaces, ovate, 7--24 cm. long, 4.5--15 cm. wide, apically abruptly short-acuminate, marginally entire, basally mostly truncate or subtruncate on the uppermost

leaves, sometimes cordate on the lower ones, strigillose above on the lamina but densely pilose on the venation, densely pilose-pubescent with extremely short, flavescent, and appressed hairs over the entire venation beneath but only slightly so on the lamina; inflorescence large, terminal, laxly paniculate, to 22 cm. long and wide, appressed-pubescent with antrorse flavescent hairs throughout, composed of 5--8 pairs of decussate-opposite and divaricate many-flowered cymes; peduncles 1.5--9 cm. long, continuous with the adjacent branchlet and exactly similar in texture and pubescence; sympodia 2--5 cm. long; pedicels slender, 4--22 mm. long, green when fresh, densely pubescent with more or less tangled brownish or reddish hairs; bracts few, foliaceous, ovate, to 6 cm. long and 3.2 cm. wide, similar to the uppermost leaves in all respects but smaller and often more densely pubescent, stipitate, caducous; bractlets few, often foliaceous, caducous; prophylla obsolete or very small, setaceous, inconspicuous; flowers fragrant; calyx green before and during anthesis, 5-fid to below 3/4 of its length, cinereous-pubescent and often with a few scattered discoid glands especially basally, the lobes lanceolate, apically acuminate, the midrib dorsally prominent and more densely pubescent; corolla hypocrateriform, white, the tube narrow-cylindric, 2--3 times as long as the calyx, internally with white strigose hairs, externally ferruginous-villous, the limb 5-parted, the lobes short, equal, oblong or obovate, apically obtuse; stamens inserted in the corolla-tube, 4, the filaments capillary, twice as long as the corolla, alternate with the corolla-lobes; anthers oblong; pollen grains isopolar, circular in polar view, transversely elliptic in equatorial view, the aperture tricolpate, the exoaperture lolongate, its aperture irregularly dentate, the sexine spinulose, baculate, thicker than the nexine; pistil equaling the stamens; stigma bifid; ovary 4-celled, each cell 1-ovulate; fruiting-pedicels scarlet; fruiting-calyx much accrescent, persistent, bright-pink or dark-maroon to red or scarlet, coriaceous, succulent, spreading, venose; fruit drupaceous, subglobose, black or purplish to violet-black when mature, about 8 mm. long and wide, externally glabrous, succulent, shiny, composed of 4 pyrenes, non-dehiscent; seeds basifixed, 1 in each pyrene; embryo conforming to the seed in size and shape, erect, white; cotyledons oblong-ovate, thick, fleshy, plano-convex; radicle very small, subglobose, inferior; chromosome number: probably $2n = 52$.

This is the designated type species of the genus. According to a letter received by me from my longtime friend and colleague, William T. Stearn, dated August 25, 1970, the "obligate lectotype" of *C. infortunatum* "is a Ceylon specimen collected by Paul Hermann preserved in the Hermann Herbarium (vol. 4 fol. 46) here in the British Museum (Natural History)". Lourteig (1966) identifies this as Hermann's specimen number 17, type of his *Clerodendron folio lato & acuminato* of 1737.

In the Linnean Herbarium, in London, I personally examined, under genus 789 [810], sheet no. 1, which is inscribed "*infortunatum*" in Linnaeus' own handwriting and is definitely this taxon; it was present there in Linnaeus' first enumeration.

This much confused species is apparently native to Sri Lanka (and possibly the Andaman Islands) and there endemic. Thwaites & Hooker (1861) describe it as "not uncommon in damp forests, up to an altitude of 5000 feet" in Sri Lanka and my wife and I confirmed this on our recent visit to that island nation.. It was Britton & Wilson, in 1925, who first designated it as the type species of the genus.

Bojer (1837) states that *C. infortunatum* was cultivated in gardens in Mauritius in his day, flowering there in April and May, from material originally obtained from Sri Lanka. Thwaites & Hooker (1839) cite C.P.2894 from Sri Lanka and Schauer (1847) cites from Sri Lanka *Burman s.n.* and *Leschenault s.n.*

The bibliography of "*C. infortunatum*" is quite extensive, but, unfortunately, most of it is partially or completely unreliable because of the nomenclatural confusion which has plagued this taxon almost since its establishment by Linnaeus. The Hermann (1717) and Burman (1737) pre-Linnean references apparently correctly apply to this species, but those of Rheedee (1679) and Petiver (1695) probably not, and that of Rumpf (1743) certainly not. For instance, it seems apparent that the so-called "*Clerodendron infortunatum* Gaertn." [or "*Clerodendron infortunatum* L."] of Bose (1920), Burkill (1934, 1965, 1966), Crevost & Pételot (1934), Chevalier (1919), Poiret (1804), and Ridley (1911) is really *C. villosum* Blume; that of Babu (1977), Bor & Raizada (1954), Desfontaines (1804, 1815), Dop (1935), Farnsworth (1971), Gamble (1908), Haines (1922, 1961), Fletcher (1938), Jain & De (1966), Jain & Tarafder (1970), Kurz (1875, 1877), Lam (1919), Löve (1979), Kanjilal & al. (1939, 1982), Kitamura (1955, 1959), Nairne (1894), Maximowicz (1886), Parker (1924), Penna (1936), Petelot (1953), Panigrahi & Saran (1967), Singh & Patnaik (1966), Stewart (1972), Thrower (1971), Troth & Nicolson (1977), Voss (1895), and Yamazaki (1966) is *C. viscosum* Cent.; that of Pardo de Tavera (1892) is *C. minahassae* var. *brevitubulosum* H. J. Lam; that of Briquet (1895) is *C. kaempferi* (Jacq.) Sieb.; while that of the following authors, all based on non-Srilankan material, is either *C. villosum* or *C. viscosum* or a combination of both: Banerjee (1964), Caudhuri (1969), Chopra & al. (1969), Craib (1911, 1912), Duthie (1911), Dymock (1893), Haines (1910), Hartwell (1971), Kariyone (1967), Kihara (1955), Kitamura (1959), Mukerjee (1965), Nath (1960), Osmaston (1927), Patel (1971), Prain (1903), Puri (1960), Rodger (1922), Stewart (1899), Talbot (1909), and Watt (1889). The plant referred to by Dastur (1923), Sydow (1923), and Wangerin (1923) is most probably *C. villosum*, while that referred to by Syngé (1956) is probably *C. speciosissimum* Van Geert and that referred to by Nair (1965) and by Nair & Rehman (1962), with pollen description, is most probably *C. viscosum*. The "*C. infortunatum*" with red corollas, illustrated by Edwards (1895) is probably *C. kaempferi* (Jacq.) Sieb., while that of Paxton (1844), also with red corollas, is probably *C. speciosissimum* Van Geert. Without examination of any voucher herbarium material that may (hopefully) have been kept, it is impossible to state with certainty the true identity of the "*C. infortunatum*" of Manzoor-i-Khuda (1966), but it probably was *C. viscosum* Vent. and this applies also to the illustration given by Letouzey (1974).

The *Clerodendron infortunatum* illustrated by Wight (1849, 1963) and copied by Blatter & al. (1935, 1975), is probably correctly named -- the fig. 1 shows an elongated corolla-tube, although the corolla-tubes on the flowers depicted on the habit sketch are rather foreshortened.

The description of the chromosome number as "probably 52", as given above, is based on several published descriptions (e.g. Nair, 1965, Cave, 1959), but if the material used to obtain this figure actually represented the true *C. infortunatum* L. is extremely dubious -- the material much more likely was the widespread Indian and Nepalese *C. viscosum* Vent., a species which has very widely been misidentified as "*C. infortunatum*" by more recent authors and collectors. The vast majority of the Indian material examined by me and originally labeled as "*C. infortunatum*" has proved actually to be *C. viscosum* Vent. or *C. villosum* Blume, two very similar species. In *C. infortunatum*, however, the leaf-blades are marginally entire, the uppermost (most usually seen on herbarium specimens) are usually basally truncate or subtruncate, and the corolla-tube is 2--3 times as long as the calyx during full anthesis. In *C. villosum* the leaf-blades are also marginally entire, but usually all decidedly basally cordate and the corolla-tube is only as long as or slightly longer than the calyx during full anthesis. In *C. viscosum* the leaf-blades are marginally denticulate to even coarsely dentate and basally uniformly cordate and the corolla-tube is about 2 cm. long in full anthesis.

The true *Clerodendrum infortunatum* is known to me only from Sri Lanka and possibly the Andaman Islands; *C. villosum* is known to me from 7 states of India, Burma, the Mergui Archipelago, Thailand, Laos, Vietnam, 9 states of Malaya, 5 islands of the Philippines, and 13 of the Sunda Islands; *C. viscosum* is known to me from northwestern Pakistan, Nepal, 18 states of India, Bangladesh, Burma, South Andaman, the Nicobar Islands, Yunnan (China), Hainan Island, Hong Kong, Thailand, Vietnam, 3 of the Philippine Islands, 3 of the Greater Sunda Islands, and Queensland (Australia), also perhaps naturalized in Brazil. All three species are or have been cultivated in various parts of the world. Other species greatly resembling *C. infortunatum* are the Indonesian *C. adenophyllum* H. Hallier, *C. buruanum* Miq., and *C. confusum* H. Hallier.

Jack (1843) tells us that *C. villosum* differs "abundantly" [from *C. infortunatum*] "by the softness of the leaves which are larger and more deeply cordate, by the comparative shortness of the tube of the corolla and by the white calyx of the fruit".

According to Ventenat (1803) *Clerodendrum infortunatum* was based by Linnaeus on the *Clerodendrum folio lato et acuminato* of Burman in Thes. Zeyl. pl. 29, p. 66 (1737) and is restricted to Ceylon. Its chief characteristics are entire and merely subcordate leaf-blades and an especially small calyx only 1/3 as large as the corolla-tube, and a small bilabiate corolla-limb, well illustrated in Burman's plate and verified by Ventenat by examination of a specimen in the Jussieu Herbarium in Paris.

The pollen description, given above, is taken from Arachi (1968)

whose material apparently was the true *C. infortunatum* if his excellent illustration can be relied on.

Gaertner (1788) credits *C. infortunatum* to "Ind. or., Malaya", but, as stated above, I do not know it either from eastern India nor Malaya; Raeuschel (1797) also lists it from -- and only from -- "Ind. orient." [of course, Sri Lanka was often regarded as part of eastern India in those days]. Angely (1971) credits it to "Orbis vet. reg. calid." Loudon (1830) and Sweet (1826) both claim that it was introduced into cultivation in England from the "E. Indies" -- if so, then the material was probably not *C. infortunatum*. Bailey (1935) lists it as existing in cultivation, with material available to the horticultural trade from the Edinburgh botanical garden; he does, however, not list it as known to him from any American gardens (Hortus, 1935), nor does he list *C. villosum* or *C. viscosum*.

Many scientific and pre-Linnean names have been reduced erroneously to the synonymy of *C. infortunatum* L. because of the mixup in its circumscription and geographic distribution. For instance: *Clerodendron macrocalyx* Lam. and *Volkameria rubra* Lour., sometimes reduced to *C. infortunatum*, actually are *C. villosum* Blume; *Volkameria petasites* Lour. is *Clerodendrum petasites* (Lour.) S. Moore; *Clerodendron calycinum* Turcz., *C. castaneifolium* Klotzsch, *C. vestitum* Wall., *C. cordatum* Don, *Volkameria infortunata* Roxb. [placed here by Jackson, 1895], and *Marurang* Rumpf (1743) are *C. viscosum* Vent., as is also the *Petasites agrestis* Rumpf listed by Linnaeus (1771), Gaertner (1788), Nernich (1791), Schauer (1847), Fernandez-Villar (1880), Miller (1797), and other authors, as can plainly be seen from the splendid illustration of its toothed leaf-blades given by Rumpf (1743) and by the fact that it was described from the Malabar Coast (India), not from Sri Lanka. The Rheede and Sloane synonyms listed by Burman (1737) and the Ray, Commelyn, and Rheede synonyms listed by Linnaeus (1743) must also be excluded.

Poiret (1804) includes *Tittius littorella* Rumph. as a synonym, but actually it belongs in the synonymy of *Guettarda speciosa* L. in the Rubiaceae. Schauer (1847) includes *Volkameria infortunata* Roxb. and *Clerodendron viscosum* Vent., both now regarded as *C. viscosum* Vent., and gives the species' overall distribution as "India orientali, Madras, Courtallum, Penang, Audih, etc." Fernandez-Villar (1880) includes *C. fortunatum* Blanco and *C. blancoi* Naves, but these are now regarded as synonymous with *C. minahassae* var. *brevitubulosum* H. J. Lam. Pételot (1953) includes *C. viscosum* Vent., *C. cordatum* D. Don, *C. macrocalyx* Lam, *Volkameria infortunata* Roxb., and *Volkameria petasites* Lour., all now excluded. The *Peragu* included as a synonym by Linnaeus (1753, 1763), Burman (1768), Miller (1797), and Poiret (1804) is actually *C. villosum* Blume, while the *Arbor zeylanica fortunata quibusdam* Petiv., *Planta fortunata*, *pinna zeylonensibus* Herm., and *Frutex flore perlato, fructu rotundo* Kleinhof seem to belong in the synonymy of *C. serratum* (L.) Moon. Steudel (1821) actually reduces *C. infortunatum* L. to synonymy under *C. viscosum*; Roxburgh's *Volkameria infortunata* certainly is *C. viscosum*.

Several of the infraspecific taxa proposed by various authors

must also be excluded -- for instance, *Clerodendron infortunatum albiflorum* Teijsm. is *Clerodendrum speciosissimum* f. *album* Mold., *Clerodendron infortunatum* var. *albiflorum* Hassk. is *Clerodendrum villosum* Blume, *Clerodendron infortunatum* p. *vestitum* Wall. is *Clerodendrum viscosum* Vent., and *Clerodendron infortunatum* var. *splendens* Voss is *Clerodendrum speciosissimum* Van Geert. The presumed natural hybrid, "*Clerodendron infortunatum* x *villosum*" of Backer (1916) seems actually to be *Clerodendrum confusum* H. Hallier.

Recently Meeuse (1942) has regarded the Indian plants, as distinguished from the Sri Lankan ones, as *C. petasites* (Lour.) Meeuse, but Merrill (Journ. Arnold Arb. 19: 65. 1938) has plainly shown that Loureiro's *Volkameria petasites* actually is a very different plant, *Clerodendrum petasites* (Lour.) S. Moore, which see.

Various economic, medicinal, and pharmaceutical uses have been reported in literature for *C. infortunatum* [e.g., by Dymock & al., 1893, Watt, 1889, Kosteletzky, 1834, Jain & Tarafder, 1970], some of which were listed by my wife and myself in our 1983 work on Sri Lankan plants, but it seems rather definite that most, if not all, of these references are based on misidentifications and apply, rather, to *C. villosum* and/or *C. viscosum*. They will be more fully treated by me under those taxa in the present series of notes, which see. It is, however, known definitely that flowering branches of *C. infortunatum* are often used in temple offerings and decorations in Sri Lanka, and Trimen (1895) asserts that the leaves are used there as an anthelmintic. Interestingly, Balfour (1862) avers that the species is "the reverse of useful in medicine" -- apparently merely an attempted translation of the scientific specific epithet.

Paul and his associates (1961, 1962) give detailed chemical analyses of the clerodin found in what they refer to as *Clerodendrum infortunatum* L.

Most of the illustrations listed by Stapf (1930) as depicting this species seem to be illustrative of non-Sri Lankan material and are therefore not cited here by me, but, rather, under *C. villosum* Blume or *C. viscosum* Vent., which see.

Clerodendrum infortunatum is said to be attacked by the fungi, *Colletotrichum infortunati*, *Meliola callicarpicola*, and *Aulacophora* sp. [cfr. Singh & Patnaik, 1966], but, again, I suspect that the host in these cases was either *C. villosum* or *C. viscosum*. Ramakrishnan (1952) describes the fungus, *Physalospora clerodendri* from *C. infortunatum*, based on one of his own collections in South Kanara (Kerala, India), but, again, I suspect that the host was not *C. infortunatum*, but more probably either *C. villosum* or *C. viscosum*.

Fifty or more common and vernacular names have been reported for *C. infortunatum*, but most of these probably apply, not to this species, but to *C. villosum* and/or *C. viscosum* instead. The only ones which seem definitely to apply to *C. infortunatum* are "gas-pinna", "infortuné". "l'infortuné", "long-flowered clerodendrum", "ongelukkige boom", "ongelukkige lotboom", "piene", "pinna", "pinna kole". "pinnakola", "unfortunate clerodendrum", "unglückliche Losbaum", "unglücksbaum", and "vata madakki".

Recent collectors in Sri Lanka describe the true *Clerodendrum in-*

fortunatum as a low, erect or somewhat spreading, pyramidal, profusely flowering shrub, 1--5 m. tall, or even a tree or treelet, 2--5 m. tall, often simple-stemmed, sometimes "dense", the leaves membranous and "yam-like". the "bracts" conspicuous, red or red-violet, the panicle's rachis dark-red, the flowers tetramerous, fragrantly scented, the calyx red or "the calyx and pedicels at first green, later scarlet", the corolla salverform, its tube strigose, the stamens exserted, white, the filaments and style exserted and white, the fruiting-calyx accrescent, persistent, bright-red or carmine to scarlet or dark-maroon, and the fruit drupaceous, subglobose, black, glabrous, and shiny.

They have encountered the plant in scrub jungles and their edges, in hedgerows and fencerows, in both montane and remnant forests, on grassy roadside cuts and banks, along roadsides and streamsides, in both primary and secondary forests, at the edges of marshes, along railroad tracks and jeep tracks, on slopes, in shrub and grass thickets and "regeneration scrub", in waste ground, and in semi-sun on roadsides through cardamon plantations, often in brown-red clayey soil, at altitudes of 2--1350 meters, in anthesis from August to June, and in fruit in February, March, and August to October. Theobald & Grupe found it "common in dense shade and along disturbed edges of roads"; Maxwell and his associates report it "very common along roads", and Kostermans also refers to it as "common". Davidge & Sumithraarachchi call it a "common small tree"; Fosberg found it "common on the edges of degraded forests above tea plantations" and "occasional in disturbed ground along recently opened logging roads in tall rainforests". Comanor reports it "abundant in ectone", while Amaratunga describes it as "a very common weed in waste ground in the low country". Cramer calls it "common along shady roadsides", while Bernardi found it "rather common" in one locality and "apparently rare" in another. My wife and I observed it quite often in roadside shrubbery, on road shoulders, and scattered at the edges of jungles, but certainly never observed it forming a true tree.

The corollas are described as "white" on almost all collections where a flower color is given at all, except that Waas refers to the "flowers" as "red" and Balakrishnan calls them "purple" -- I suspect that it may be the calyxes or fruiting-calyxes to which these collectors are referring. Amaratunga erroneously refers to the fruit as a "berry" and Bernardi describes the inflorescences as corymbs. Pollen has been collected from *Comanor 1008*.

Many unjustified homonyms have been published (in synonymy) by various authors: their disposition, in my view, is as follows: *Clerodendron infortunatum* Auct. (1963), "Auct. non Linn" (1968), Blume (1918), Lour. (1793) in part, (Roxb.) Linn. (1913), and Schau. (1847) are all *Clerodendrum viscosum* Vent., while F.-Vill. (1882) is *C. minahassae* Teijsm. & Binn., Bot. Reg. (1895) is *C. speciosissimum* Van Geert, Lam (1947) is *C. petasites* (Lour.) S. Moore, Lour. (1793) in part is *C. kaempferi* (Jacq.) Sieb., Dennst. (1893), Walp. (1843), and R. Wight (1850) are *C. villosum* Blume, and Blume ex Fern.-Villar (1880) is *C. buchanani* (Roxb.) Walp.

Clerodendrum infortunatum Auct. (1935), "Auct. mult. non Linn."

Lour. (1935) in part, Miq. (1968), Willd. (1976), and Blume ex H. Hallier (1918) are all *C. viscosum* Vent., while Lindl. (1918) is *C. speciosissimum* Van Geert, "L. ex parte Rheede" (1967), Wight (1918), and Dennst. (1959) are *C. villosum* Blume, and Lour (1935) in part is *C. kaempferi* (Jacq.) Sieb.

It should be noted here that *C. infortunatum* γ *depauperatum* Wall. is based on Wallich 1796/7 from Pagoda Hill, Mulmain, Burma, collected in 1827, to which Wallich had appended a note: "vix non distincta spec." Wallich's *C. infortunatum* ϕ *vestitum*, based on Wallich 1796/5 & 6, from Nepal, the latter later cultivated in Calcutta, appears plainly to be *C. viscosum* Vent. If the Burmese collection was from wild material, it probably is not *C. infortunatum*, and may also prove to be *C. viscosum*. Examinations of the type specimens in the East India Company Herbarium at Kew is necessary to resolve this issue. It is also worth noting here that Wallich's 1795/H was from the Roxburgh herbarium, 1795/J was from the Madras herbarium, 1795/K was from the Russel herbarium, 1795/L was from Hamilton's herbarium, 1795/M was from Wight's herbarium, and 1795/N was collected in Penang in 1822, while 1795/O was collected in Oude in 1825. It is most probable that most or all of these collections represent *C. viscosum*, and not the true *C. infortunatum* L.

Parkinson (1922, 1972) speaks of "two types" of *C. infortunatum* growing on South Andaman island -- presumably *C. infortunatum* and *C. viscosum*. Sharma & Mukhopadhyay (1963) speak of six types of *C. infortunatum*, all of which have the 2n chromosome number of 52 but "differing in their minor characters". Surely they must have had some *C. villosum* and *C. viscosum* material among these "6 types". They assert that "In the present investigation 2n = 52 chromosomes have been seen in *C. infortunatum* and all its varieties" [as well as in *C. minahassae*, *C. philippinum*, *C. wallichii*, *C. indicum*, and *C. kaempferi*], in contradistinction to 46 in "one variety" of *C. thomsonae*, *C. inerme*, and *C. splendens*, 48 in "another variety" of *C. thomsonae*, and 184 in *C. ugandense*.

Because of the involved nomenclatural and taxonomic history of this species and the resulting past confusion in its interpretation, it may be worthwhile to reproduce here a few of the relevant treatments:

(1) Hermann (1747, 1748): "232. *Clerodendrum foliis simplicibus cordatis tomentosis*. / *Clerodendron folio lato & acuminato*. Burm. zeyl. 66. t. 29. / *Frutex baccifer malabaricus, floribus pentapetalis binis, una bacca nigra in calyce stelliformiter expanso*. Raj. hist. 1571. Comm. mal. 31. / Peragu. Rheed. mal. 2, p. 41. t. 25. / Pinnakola, sive infelix & infortunata. Herm. zeyl. 25.54. / Descr. Arbor ramis subtomentosis. Folia opposita, cordata, acuta, venosa, scabriuscula, magna, integerrima, petiolis longitudine foliorum insidentia. Panicula florum ramos terminata ex pedunculis brachiatis & per dichotomiam subdivisis. Calyx campanulatus, monophyllus, amplus, quinquefidus profunde: laciniis oblongis, acuminatis, aequalibus. Corollae tubus filiformis, longus, angustus. Limbus brevis, laciniis quinque, obverse ovatis, aequalibus, duabus inter se remotioribus. Filamenta quatuor, capillaria, flore duplo longiora, ad

hiantem laciniam corollae. Antherae oblongae. Pistillum staminum figura & longitudine, stigmatе bifida."

(2) Gaertner (1788): "*Clerodendron infortunatum*. Tab. 57. fig. 1. / *Petasites agrestis* Rumph. amb. 4. p. 108. t. 19. / *Clerodendron folio lato & acuminato*. Burm. zeyl. 66. t. 29. / *Clerodendron foliis cordatis tomentosus*. Linn. syst. veg. 578. / *Pinnakofa. zylonens* E collect. sem. hort. lugdb. / Per. Bacca succulenta, calycis laciniis triangularibus trinerviis contexta, subglobosa, depressiuscula, sulco cruciatis in vertice inscripta, unilocularis, tetrapyrrena. Cuticula tenuis, glaberrima, splendens, non dehiscens. Pulpa mollis, per aetatem evanescens. Ossicula subossea, hinc convexa rugosa, inde angulata glabra, unilocularia. / Rec. nullum; semina basi affixa. / Sem. in singulo ossiculo unicum, eidemque conforme, rufescens. / Int. duplex, utrumque membranaceum, tenue. / Alb. nullum. / Emb. semini conformis, erectus, albus. Coty. ovato oblongae, carnosae, crassae, plano convexae. Rad. minima, subglobosa, infera."

(3) Roth (1821, 1975): "*Clerodendron infortunatum*. / *C. foliis cordatis tomentosus*. Linn. Flor. Zeylan. n. 232. Spec. Plant. ed. Willd. Tom. III. P. 1, p. 386. / Observ. Specimen meum a Veneratiss. Heyne acceptum omnimode respondet descriptioni Linneanae in Flora Zeyl. l. c. At *Petasites agrestis* Rumph. Amboin. Vol. IV. pag. 180. Tab. 49. quam Linneus in Flor. Zeyl. non adduxit, in posterioribus Specierum Plantarum editionibus huic plantae pro synonymo adscripta videtur, quamvis minus respondeat. Folia enim repandodentata delineata et descripta sunt, quae constanter integerrima observantur et Panicula ramosior est, quam figura representat. Willdenow in posterum errorem emendavit, cum in Enumeratione Plant. Horti Berol. pag. 658. hoc synonymum ad *Clerodendron viscosum* Vent. retulerit."

(4) Morren (1845): Le *Clerodendron infortunatum* (Linn. fl. Zeyl. 232. -- Bot. reg. 1811. tab 19), se distingue à ses grandes feuilles presque arrondies, profondément cordiformes, dentées, poilues au-dessus, tomenteuses au-dessous, à sa panicule colorée simple, pubescente, à ses fleurs presque sessiles au sommet des rameaux, à son calice grand, quinquefide, aux divisions de sa corolle planes, ovoïdes, obtuses, un peu plus courtes que les étamines. Le bouquet de ses fleurs d'un rouge légèrement briqueté fait le plus bel effet. Il faut remarquer que les *Clerodendron vestitum* et *depauperatum* de Wallroth, ne sont autres que se même *Clerodendron infortunatum*; mais le *Clerodendron infortunatum* de Willdenow est une espèce particulière admise par les botanistes sous le *Clerodendron viscosum*. De même, le *Clerodendron infortunatum*, de Dennstedt est la *Clerodendron villosum* de Blume. La confusion peut donc facilement s'établir dans les catalogues relativement cette espèce."

(5) Trimen (1895): "*C. infortunatum*,* L. Sp. Pl. 637 (1753). Gas-pinna, S. / Herm. Mus. 25, 45. Burm. Thes. 66. Fl. Zeyl. n. 232. Moon Cat. 46. Thw. Enum. 243. C.P. 2894. / Fl. B. Ind. iv. 594. Burm. Thes. t. 29. Wight, Ic. t. 1471. / A shrub or small slender tree, 4--10 ft., branchlets very bluntly quadrangular, yellowish dirty-pubescent; l. large, 4--6 in., ovate, cordate or round-

ed at base, acuminate, acute or subacute, entire, thinly hairy on both sides, especially on the veins beneath, somewhat 3-nerved from the base, venation prominent beneath, petioles $1\frac{1}{2}$ -3 in., cylindrical, pubescent; fl. large, on rather long pubescent ped., cymes stalked, in large, lax, pyramidal, pubescent panicles, bracts leafy, deciduous; cal. $\frac{1}{2}$ in., silky-pubescent, very much enlarged in fruit, segm. deep, lanceolate, very acute; cor.-tube about 1 in., slender, lobes large, $\frac{1}{2}$ in., oblong, obtuse; drupe $\frac{1}{3}$ in., nearly globose, succulent, purplish-black, shining, seated in centre of the very much enlarged, spreading, succulent, bright pink cal. $1\frac{1}{2}$ in. diam., pyrene usually solitary, brittle. / Moist region up to 5000 ft.: common. Fl. April--August; white. / Also in India and Malaya. / Leaves have a smoky odour when bruised; they are used as an anthelmintic. / *This name is due to Hermann (1.c.), who so translates the Sinhalese 'Pinnakola'; he has also (1. c.) a 'planta fortunata' (= 'Pinna', S.), which is probably the same species. I do not know the origin of these terms."

(6) Hallier (1918): "*Clerodendrum* (§. *Paniculata*) *infortunatum* (haud Bl. nec Hassk. nec Lindl. nec Wight) L., Sp. Pl., ed. 1, II (1753) p. 637 excl. synn. Rheed. et Raj.; Gaertn. 1.c. p. 271 t. 57 fig. 1 excl. syn. Rumph.; Schauer 1.c. (1847) p. 667 quoad pl. zeyl., excl. synn. Lindl., Roxb., Vent., Rumph.; Miq. 1.c. (1856) p. 876 quoad pl. zeyl. (excl. synn. Wight., Roxb., Vent., Rumph., Rheed.); Clarke 1.c. p. 594 ex p. (excl. synn. Wight., Vent., Don., Klotzsch., Roxb., Rumph., Rheed. etc.); Trimen 1. c. p. 361 excl. syn. Wight. et pl. ind. et mal.; Gamble 1. c. p. 835 ex p. -- *Clerodendron folio lato et acuminato* Burm., Thes. Zeyl. (1837) p. 66 t. 29 excl. synn. Rheed. et Sloan. -- *Cl. foliis simplicibus cordatis tomentosus* L., Fl. Zeyl. (1748) p. 104 no. 232 excl. synn. Raj., Comm., Rheed. -- Ramuli teretes vel praecipue infra nodos obtuse complanato-tetragoni, breviter dense appresse ochraceo-tomentelli. Foliorum lamina cordata, integerrima vel obsolete et irregulariter repando-dentata, subtus prominter palmato- et pinnato- et clathrato-nervosa, in nervis densius, in venis parcius pubescens, sub lente ubique pilis glandulosis punctulata glandulisque majoribus fuscis pezizaeformibus praecipue prope basin et nervum medianum punctata, basi haud bullata, supra praeter nervos (pubescentes) subglabra. Calyx usque infra $\frac{3}{4}$ longitudinis 5-fidus, extus cinereo-pubescent et praeter basin glandulis discoideis praeditus, lobis lanceolatis acuminatis, nervo mediano extus prominente densius pubescente, in fructu valde auctus, coriaceus, nervosus, drupam subinvolucrans. Corollae (incompleta tantum suppetit) tubus dupla calycis longitudine (cf. etiam Burm. 1. c. t. 29), extus ferrugineo-villosus. / Zeylon (König? in der Fruchtsamml. des Hb. L. B. unter d. Namen Pinne-ette 1), verimuthlich Gärtner's Original-exemplare) (Herb. zeyl. hort. Amst. no. 98 im Hb. L.-B., hl. -- 'Piene') (von unbekanntem alten Sammler no. 148, steril. -- 'Pinne galä'). / Verbr.: Anscheinend endemisch. / 1) singal. ette = Same."

(7) Santapau (1961): "*Clerodendrum viscosum* Vent. / The identity and nomenclature of this plant is somewhat confusing. Three plants are often mixed together: *Clerodendrum infortunatum* Linn.; *C. vis-*

cosum Vent. and *Volkameria petasites* Lour. / The real *C. infortunatum* Linn. is described by Meeuse in *Blumea* 5: 77, 1942. as 'pubescence of corolla ferrugineous, calyx lobes with prominent midrib, leaves on lower surface with minute glands and with a number of larger glands near the base and near the midrib; Ceylon (endemic)'. Meeuse gives the name of the common Indian plant as *C. petasites* Moore, based on *Volkameria petasites* Lour. On the other hand Merrill wrote on the identity of the latter plant in *Trans. Amer. Phil. Soc. n. s.* 24: 338, 1935: 'Loureiro took his specific name from *Petasites agrestis* Rumph...which he cites as illustrating his species, but which, however, represents a species very different from *Clerodendron petasites* Moore. Schauer, perhaps interpreting the species from the Rumphian illustration, erroneously reduced *V. petasites* Lour. to *C. infortunatum* Gaertn. Loureiro's type is preserved in the herbarium of the British Museum, which on examination Moore found to be identical with *Clerodendrum subpandurifolium* O. Ktze., a species based on specimens collected by Kuntze at Tourane, Annam: Kuntze's actual type is preserved in the herbarium of the New York Botanical Garden; the species is also represented by *Squires 329* from the classical locality Hue, and *Robinson 1290* from Nha Tang. *Petasites agrestis* Rumph. which I.....referred to *Clerodendron speciosissimum* van Geert is placed by Lam (*Bull. Jard. Bot. Buitenzorg III* 3: 91. 1921) as a synonym of *Clerodendron buch-anani* (Roxb.) Walp., this apparently being the correct disposition of it.' / The oldest valid name for the present species is *Clerodendrum viscosum* Vent., which has been adopted by Moldenke in several of his publications on the *Verbenaceae*, and by the present author in the *Flora of Khandala*, with the following nomenclature: / *Clerodendrum viscosum* Vent., *Jard. Malm. t.* 25, 1803; Moldenke, *Geogr. Dist.* 54 et in *Litt. priv. ad auctorem*; Santapau 190. *C. infortunatum* auct. mult. non Linn. *FBI* 4: 595; *Cooke* 2: 432. *C. petasites* Moore in *Journ. Bot.* 63: 285. 1925 (non *Volkameria petasites* Lour., 1790)."

(8) Arachi (1968): "*Clerodendron infortunatum* Linn.: A large villous shrub [sic]. Leaves: Simple, opposite cordate, suborbicular, entire. Flowers: White, in axillary and terminal cymes, bracts leafy. Sepals: Campanulate [sic], 5 lobed, truncate, partite. Petals: 5, oblique lobes spreading. Stamens; 4, inserted at throat, filaments long, anthers linear. Pistil: 4 celled, one ovule in each cell, style long, stigma bifid. Fruit: A fleshy globose drupe, black."

In addition to the many nomenclatural errors in the bibliography of *Clerodendrum infortunatum* L., there are also some others to add to the confusion. For instance, Linnaeus' 1747 work is sometimes cited to "page 232", but "232" is the species number, not the page number. Also, Rheede (1679) is sometimes erroneously cited as published in "1703"; Lamarck's work (1796) is cited by Stapf (1930) as "1797", but the entire Tome 3 was actually published on November 21, 1796. The Willdenow (1800) work is sometimes erroneously cited as "3 (2)" instead of 3 (1); the Moon (1824) reference is sometimes incorrectly cited as published in "1821" and the Baillon

(1891) work is often cited by the titlepage date of "1892". Of the ten illustrations listed by Stapf (1930) as representing *C. infortunatum* not a single one seems definitely to depict this species, while that given by Bose (1920) seems definitely to represent *C. villosum* Blume.

Material of *C. infortunatum* has been misidentified and distributed in some herbaria as *C. villosum* Blume. On the other hand, a very large number of other taxa have been misidentified as *C. infortunatum* in many herbaria -- for instance, Bartlett 6460, 7207, & 7729, Boeza 6671 & 8831, Hallier B.2506, Krukooff 4001, Native Collector 2013 & 5286, Toroes 184, 1647 bis, 2394, 2528, 2668, & 5160, and Yates 1032 & 2600 are *C. adenopysum* H. Hallier; Mjoberg 173 is *C. buchanani* (Roxb.) Walp.; Hern. Hort. Bot. Bogor. XI.B.XIX.121 and Pijl 715 are *C. buruanum* Miq.; Native Collector 526 is *C. buruanum* f. *lindawianum* (Lauterb.) Bakh.; Merrill 1299 & 7237 are *C. curranii* Elm.; Qureshi s.n. [Nov. 1968] is *C. indicum* (L.) Kuntze; Kurz s.n. [South Andaman] is *C. lankawiense* var. *andamanense* Mold.; Rock 2895 is *C. philippinum* Schau.; Rock 2862 is *C. philippinum* f. *multiplax* (Sweet) Mold.; Hahn 541 is *C. speciosissimum* Van Geert; Clarke 11432, Hllgel s.n., Janaki 313, Thomson s.n. [Maison & Carnatic], and Wight 2316 are *C. villosum* Blume; Cleghorn s.n. [Jan. '53], Griffith 6053, Harsukh s.n. [8.4.98], Herb. Hort. Bot. Calcutt. s.n., Herb. Hort. Monac. s.n. [1849.23.1], Herb. Nat. Bot. Gard. 20232, Herb. Schreber s.n., Herb. Zuccarini d.n., Hooker & Thomson s.n. [0--4000 ped.], Hosseus 470a, Jenkins s.n. [Assam], Kerr 2062a, King's Collector s.n. [13.4.1895], Löffler s.n. [1957], Mukherjee 90, Native Collector 527 & DI.88, Nicolson 3054, Prain's Collector 20, Ratt 3242, Rice 30, Rock 710, Roxburgh s.n. at Kew, Schomburgh 106, Singh 94 & 130, Thomson s.n. [Plan. Ganget. Sup.], and Troth 686 & 830 are *C. viscosum* Vent.; Hefner 6053 and Maxwell 75-273 are *C. viscosum* var. *helpferi* Mold.; Hohenacker 162 & 1442 are *C. viscosum* var. *nilagiricum* H. Hallier; Hassib s.n. [24/12/1929] is *Callicarpa longifolia* Lam.; and Toroes 1647 is in part a composite.

Citations: SRI LANKA: Alston 1329 (Pd); Amaratunga 294 (Pd), 375 (Pd), 901 (Pd), 1782 (Pd), 2261 (Pd); Balakrishnan NBK.271 (Pd, W--2720401); Bernardi 14138 (W--2766368), 15406 (W--2807750), 15725 (W--2808797); Bremer & Bremer 801 (Pd, S, W--2877176), 894 (Pd, S, W--2976966); Burman 66 (Mu--812); Collector undetermined 1833(N), s.n. [Ceylon 1831] (K, Ld--photo, N--photo), s.n. [gas-pinna] (Pd); Comanor 511 (N, Pd), 523 (Ac, N, Or--163276, W--2612070), 1008 (Ld, N, Pd, W--2766225), 1101 (Ac, N, Pd); Cramer 2480 (Ld), 3889 (W--2766608); Davidse & Sumithraarachchi 8767 (Ld, W--2808701), 8783 (Ld, W--2807758); Fosberg 56584 (Ld, N), 57887 (Lc); Fraser s.n. [Ceyl. 62] (W--74536); Gardner 62 (Du--166601); Herb. Linnaeus 810/1 (Ls, N--photo); Herb. Wight s.n. [Ceylon] (K); König s.n. (Le), Jayasuriya 265 (Pd, W--2721115); Kostermans 24057 (Pd, W--2718982); Maxwell, Hepper, & Fernando 971 (E--2145504, N, Pd, W--2760479); Moldenke, Moldenke, & Jayasuriya 28117 (Ac, Gz, Kh, Ld, Pd, Tu, W--2764566), 28208 (Ac, E, Gz, Kh, Ld, Pd, Tu, W--2764473), 28254 (Ac, Ld, Pd, W--2764514); Moldenke, Moldenke, Jayasuriya, & Dassanayake

28336 (Ac, E, Gz, Kh, Ld, Pd, Tu, W--2764548); Nooteboom & Huber 3102 (W--2890911); Palmer & Worthington 1634 (Pd); R. W. Read 2262 (Ld); Reitz 30008 (W--2762765); F. M. de Silva 24 (W--1529151); J. M. de Silva 96 (N), s.n. [July 16, 1925] (Pd); Sumithraarachchi DBS.89 (W--2803405); Sumithraarachchi & Jayasuriya DBS.169 (W--2803411); Theobald & Grupe 2380 (Pd, W--2603024); Thwaites C.P.2894 (Br, L, N--photo, Pd, Pd, Pd); Waas 12 (W--2806277), 37 (N, W--2803775), 430 (W--2803419); A. W. Walker 1325 (K, L, N); Worthington 348 (K), 1859 (K), 1860 (K). ANDAMAN ISLANDS: South: King's Collector s.n. [5 April 1893] (W--2497084). CULTIVATED: Netherlands: Collector undetermined 148 (Le); Herb. Lugd.-Bat. 908.266-45 (Le), 908.266-51 (Le); Herb. Zeyl. Hort. Amst. 98 (Ld--photo, Le, N, N--photo). LOCALITY OF COLLECTION UNDETERMINED: Herb. Swartz s.n. (S). MOUNTED ILLUSTRATIONS: Arachi, Pict. Present. Indian Pl. 159, fig. 161. 1968 (Ld); Wight, Icon. Pl. Indiae Orient., imp. 1, 4 (3): pl. 1471. 1849 (Ld).

CLERODENDRUM INGRATUM Lauterb. & K. Schum. in K. Schum. & Lauterb., Fl. Deutsch. Schutzgeb. Südsee 526 [as "*Clerodendron*"]. 1900; Mold., Alph. List Inv. Names 18 & 21. 1942.

Synonymy: *Clerodendron ingratum* Laut. & K. Schum. in K. Schum. & Lauterb., Fl. Deutsch. Schutzgeb. Südsee 526. 1900. *Clerodendron ingratum* K. Schum. & Lauterb. apud Thiseit.-Dyer, Ind. Kew. Suppl. 2: 43, 1904. *Clerodendrum ingratum* K. Schum. & Lauterb. apud Mold., Alph. List Inv. Names 18 & 21. 1942.

Bibliography: K. Schum. & Lauterb., Fl. Deutsch. Schutzgeb. Südsee 526. 1900; K. Schum., Justs Bot. Jahresber. 28 (1): 495. 1902; Thiseit.-Dyer, Ind. Kew. Suppl. 2: 43. 1904; K. Schum. & Lauterb., Nachtr. Fl. Deutsch. Schutzgeb. Südsee 373. 1905; H. J. Lam, Verbenac. Malay. Arch. 308 & 363. 1919; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 75, 84, 109, & ix. 1921; H. J. Lam, in Lauterb., Engl. Bot. Jahrb. 59: 97. 1924; Mold., Alph. List Inv. Names 18 & 21. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 67 & 90 (1942) and ed. 2, 149 & 182. 1949; Mold., Résumé 193, 196, 200, 265, 271, & 450. 1959; Mold., Fifth Summ. 1: 322, 335, 448, & 459 (1971) and 2: 867. 1971; Hartley, Dunstone, Fitzg., Johns, & Lambertson, Lloydia 36: 293. 1973; Farnsworth, Pharmacog. Titles 9 (1): vi. 1974; Mold., Phytol. Mem. 2: 313, 325, & 538. 1980; Mold., Phytologia 58: 351. 1985.

A shrub, 0.5--2 m. tall, or small tree, to 7.5 m. tall; crown narrow; bole to 3 m. long, to 10 cm. diam. at breast height; bark gray-brown, prominently fissured; wood white, moderately soft; branches slender, terete, leafy, the younger parts flattened and subtomentose, about 3 mm. thick, the tomentum thin and rusty, the leafy portion about 15 cm. long, the bark gray; leaves decussate-opposite; petioles 5--10 mm. long, subtomentose; leaf-blades thin-chartaceous, medium-green, glossy, oblong or elliptic, 2.5--8 cm. long, 2--3 cm. wide, apically acute or subobtuse, dark olive-green when dry, minutely pilose on both surfaces, more densely so beneath; secondaries 5 or 6 per side, conspicuous, stronger and elevated beneath.

[to be continued]